REMARKS

Claims 2 – 5, 8 – 10, 12, 15, and 19 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 103

Claims 2 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPR (Applicants' admitted Prior Art shown at least in Figure 8 and specification pages 2 and 3, hereinafter AAPR) and further in view of Masaki et al. (U.S. Pat. No. 6,271,907, herein after Masaki). This rejection is respectfully traversed.

The Examiner alleges that Masaki describes an end sealing material curing step of curing an end-sealing material after an end-sealing material removing step to avoid any interaction between the extra sealant present and the liquid crystal material. The Examiner further alleges that it would have been obvious to combine the teachings of the admitted prior art with the teachings of Masaki to arrive at the claimed methods of claims 2 and 15 which call for an injection port sealing material curing step of curing an injection port sealing material after an injection port sealing material removing step. Applicants, however, respectfully assert that Masaki contains no such teaching. Masaki, rather, merely teaches at column 8, lines 14-27:

> "On the data-side substrate 30, a sealing agent 7 . . . was disposed at the periphery thereof in a rectangular (frame-shaped) pattern so as to leave a liquid crystal injection port 8 shown in FIG. 1, and 1.2 μm-dia. SiO_2 spacer beads 60 . . . were dispersed at a density of 300 (particles)mm2.
>
> Then, the scanning-side substrate 54 and the data-side substrate 30 were applied to each other so that rubbing directions of the substrates were parallel and indentical to each other and the scanning electrodes 55 and the data electrodes 34 intersect each other to form an electrode matrix under a pressure of 3 kg/cm2 at 170 C for 4 hours, thus curing the sealing agent 59(7). . . ."

This disclosure makes no mention of removing an uncured sealing material. In fact, this disclosure is completely silent with respect to any removal of the sealing material. At best, this disclosure merely teaches that a sealing agent is disposed in a manner such that an injection port is left open.

Since neither the admitted prior art nor Masaki teach the removal of an uncured injection port sealing material, as claimed, each step of the claimed method is not taught. As such, Applicants respectfully assert that the claimed methods of claims 2 and 15 are not obvious.

Further, Applicants respectfully assert that claims 2 and 15 call for a step of removing at least a part of an injection port sealing material bleeding outside a contour of said liquid crystal panel. This step includes a step of absorbing the injection port sealing material by pressing an absorbent material against the injection port sealing material, and a step of absorbing the injection port sealing material with the absorbent material. The removal of an injection port sealing material bleeding outside of a contour of the liquid crystal panel is a significant aspect of the claimed method.

More particularly, the absorbent material only contacts the uncured sealing material at an edge (the claimed contour) of the liquid crystal panel that is outboard the display area of the liquid crystal panel. By only removing the uncured sealing material that bleeds outside the edge of the panel, the display area cannot be damaged due to contact by the absorbent material. That is, the absorbent material does not contact the upper or lower surfaces of the display substrates, but only the uncured material at the edges of the panel. In this manner, the display area and surfaces of the substrates that include sensitive components such as electrodes and wiring layers cannot be damaged by the absorbent material during the removal step. In the unlikely event damage to the panel occurs while absorbing the sealing material with the absorbent material, the

damage is isolated at the edges of the panel. Advantageously, the edges of the panel are not in the display area and contain no sensitive components. As such, the integrity of the display is not compromised by the removing and absorbing steps of the claimed method.

Masaki teaches at column 9, lines 62-65 that, "The liquid crystal material attached onto the scanning-side substrate 1 was sufficiently wiped off with a cotton swab 102 impregnated with a solvent . . . as shown in FIGS. 11A and 11B." Thus, Masaki appears to teach a wiping step of removing excess liquid crystal with a cotton swab. Applicant respectfully asserts, however, that the wiping step of Masaki is different from that of the claimed absorbing step, and in fact Masaki teaches away from the claimed absorbing step.

Referring to Figures 11 of Masaki, it can be seen that a cotton swab 102 is in contact with an upper surface of the substrate 1 when the swab 102 is used to wipe away the excess liquid crystal 8. Removing liquid crystal is not analogous with removing sealing material. Further, the wiping step of Masaki risks damaging the upper surface of the substrate 1 which can degrade the display quality of the substrate or damage sensitive elements on the substrates. This is an aspect the claimed method intends to avoid.

As stated above, the claimed method utilizes a step of removing an injection port sealing material that bleeds outside a contour of the liquid crystal panel by absorbing the sealing material. Since the absorbent material of the claimed invention only contacts the injection port sealing material outside of the display area, there is no risk of damage like the teachings of Masaki.

Applicant also asserts that Masaki teaches a wiping step, while the claimed invention absorbs the injection port sealing material. Although Masaki teaches the use of a cotton swab which may be absorbent, the swab is impregnated with a solvent. This solvent presumably

assists in dissolving the liquid crystal to be removed. Dissolving, however, falls short of the claimed absorbing step. Moreover, as stated above, the claimed invention avoids wiping because such a step may damage the integrity of the display. By absorbing the injection port sealing material, the claimed invention eliminates the risk of damage to the display.

For the reasons stated above, Applicant respectfully asserts that claims 2 and 15 are not obvious in view of the admitted prior art as modified by the teachings of Masaki. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claims 3 – 5, 8 – 10, 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPR (Applicants' admitted Prior Art shown at least in Figure 8 and specification pages 2 and 3, hereinafter AAPR) and Masaki et al. (U.S. Patent No. 6,271,907, herein after Masaki) as applied to Claims 2 and 15 above, and further in view of Forlini et al. (U.S. Patent No. 3,744,126, herein after Forilini). This rejection is respectfully traversed.

As stated above, there is no teaching in either the admitted prior art or Masaki of removing an uncured injection port sealing material. There is also no motivation to combine the admitted art with Masaki's wiping step to arrive at the claimed method. Since both the admitted prior art and Masaki fail to teach these aspects of the claimed invention, it there is no motivation to combine the teachings of the admitted prior art, Masaki, and Forlini to arrive at the claimed invention, the claimed invention is not obvious.

Applicant wishes to note that the use of a suction jig to absorb or suck the uncured injection port sealing material provides advantages in that a large amount of the uncured sealing material can be removed quickly. Further, since the suction jig only absorbs or sucks the uncured sealing material that bleeds outside a contour of the liquid crystal panel, there is no risk of damaging a display region of the panel with the suction jig. As stated above, Masaki teaches a wiping step of

removing liquid crystal. Such a step may damage the electrodes of the liquid crystal panel. The claimed method eliminates this risk by only removing material located at the edge of the display. In the unlikely event the suction jig contacts the edge of the display, any damage to the display is isolated at the edge of the panel outboard the display region of the panel and where no sensitive elements such as electrodes and the like are disposed. Since the prior art references fail to teach this aspect of the claimed invention, the claimed invention is not obvious.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Jan 26, 2005

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